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# U.S. Department of Agriculture

## PESTICIDE DATA PROGRAM

### Progress Report

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Although the U.S. food supply is one of the safest in the world, public concern still exists about the effects of agricultural pesticides on human health and environmental quality. Chemical residues on domestic and imported food have been of particular interest. Recognizing the need to improve the quality and quantity of information available on chemical residues, the U.S. Department of Agriculture (USDA) proposed the Pesticide Data Program (PDP) as part of its fiscal year 1991 budget. Congress approved funding in January 1991, and program operations began in May. PDP provides data on pesticide use and residue detections, which help form the basis for conducting realistic dietary risk assessments and evaluating pesticide tolerances. The Environmental Protection Agency (EPA) uses PDP data to address the reregistration of pesticides and to perform dietary risk assessment studies. Other Government agencies use the data to respond more quickly and effectively to food safety issues.

Coordination of PDP is multi-departmental with planning, policy, and procedural efforts conducted by USDA, EPA, and the Food and Drug Administration (FDA). USDA signed a Memorandum of Understanding (MOU) with EPA and FDA to provide oversight and direction for PDP through an Executive Steering Committee.

- USDA**
- Collects data on agricultural chemical usage;
  - Collects pesticide residue data through cooperation with 10 participating States;
  - Provides EPA and FDA with data on food consumption;
  - Produces residue and usage data for EPA, FDA, and the public; and
  - Provides pesticide alternative practices.
- EPA**
- Coordinates with USDA on data collection for commodities and pesticides;
  - Receives pesticide residue and usage data from USDA, FDA, State, and private sources to support pesticide reregistration and special review decisions;
  - Receives food consumption data from USDA; and
  - Conducts dietary risk assessments.
- FDA**
- Shares residue data-recording information, commodity coding systems, and commodity preparation information with USDA;
  - Collects residue data to enforce EPA-established tolerances and FDA administrative guidelines for food; and
  - Conducts total diet surveys.

### ■ USDA Structure

The four USDA agencies involved in PDP activities are the Agricultural Marketing Service (AMS), the Agricultural Research Service (ARS), the Economic Research Service (ERS), and the National Agricultural Statistics Service (NASS). AMS was selected as the lead agency to coordinate, implement, and manage the various facets of the program.

- AMS**
- Coordinates PDP activities of USDA agencies and cooperating State agencies;
  - Manages pesticide residue sampling and testing procedures;
  - Designs and maintains an automated information system for pesticide residue data; and
  - Publishes annual summaries of residue detections.



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| <b>ARS</b>  | <ul style="list-style-type: none"><li>• Conducts nationwide surveys of food intake by individuals; and</li><li>• Translates data on foods as consumed into forms that can be linked with pesticide residue data.</li></ul>   |
| <b>ERS</b>  | <ul style="list-style-type: none"><li>• Analyzes NASS and AMS data to determine the impact various regulations and production practices might have on U.S. agricultural production, the Nation's food supply, and consumers; and</li><li>• Assesses the economic implications of alternative pest control policies and practices on producers, marketers, and consumers.</li></ul>   |
| <b>NASS</b> | <ul style="list-style-type: none"><li>• Conducts annual statistically reliable surveys of vegetable and fruit producers on fertilizer and pesticide use, and characteristics of producers relating to pest management and economic practices;</li><li>• Publishes annual State-level data on the results of the chemical use surveys, including percent of area receiving fertilizer and pesticides and total amounts applied;</li><li>• Provides data points for inclusion in the Geographic Information System; and</li><li>• Provides economic data linked to pesticide use data for ERS.</li></ul> |

## ■ Program Status

### AMS

AMS has published five pesticide residue summaries to date (May-December, 1991; January-June, 1992; and Calendar Years 1992, 1993, and 1994).

Cooperative agreements have been developed with 10 States -- California, Colorado, Florida, Michigan, New York, North Carolina, Ohio, Texas, Washington, and Wisconsin -- to collect and analyze food commodities for pesticide residues. These States were selected because of their substantial agricultural production, regional diversity, interest in pesticide residue data, and technical expertise in pesticide-related issues. Together, the 10 States, plus neighboring States in their distribution network, represent more than 50 percent of the Nation's population; and, combined with PDP's statistically reliable sampling protocol, provide the basis for making national estimates from the residue data. In addition to the cooperative agreements, AMS signed a Memorandum of Understanding with USDA's Grain Inspection, Packers and Stockyards Administration (GIPSA) to analyze grains.

PDP samples are collected as close to the point of consumption as possible. Sample information gathered includes the post-harvest application of fungicides and growth regulators, and takes into account pesticide degradation that occurs during transit and storage. This provides a better representation of actual exposure to residues. Products currently collected are: 1) seven fresh fruit and vegetable commodities -- apples, carrots, grapes, oranges, peaches, sweet potatoes, and spinach; 2) two canned and frozen vegetable commodities -- green beans and sweet peas; 3) one grain commodity -- wheat; and 4) one dairy commodity -- whole milk. Program expansion to include wheat and milk required the development of revised sampling systems and pesticide testing profiles for each. In addition, at least 2 years of data have been gathered for seven other fresh commodities (bananas, broccoli, celery, grapefruit, green beans, lettuce, and potatoes) and one processed commodity (canned and frozen sweet corn).

PDP continues to amend the commodities tested to further meet EPA's risk assessment needs and respond more fully to the National Academy of Sciences (NAS) report "Pesticides in the Diets of Infants and Children." All PDP commodities for 1996, with the exception of sweet potatoes and spinach, are considered to be high-consumption foods among infants and/or children.



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Samples of fresh fruits and vegetables are generally collected at locations such as terminal markets and large chain store distribution centers, while processed vegetable samples are available only at distribution centers. The wheat samples are chosen from GIPSA's file samples, which are collected from grain elevators throughout the Nation. Wheat samples selected for PDP represent all seven types of wheat, but exclude any product intended for export. Sample collection of milk is based on fluid milk production in the 10 participating States, as well as the annual production of each processing plant.

Laboratory operations are designed to detect, verify, and report low-level pesticide concentrations. Participating testing facilities use advanced technologies, uniform laboratory procedures, and an effective quality assurance program based on EPA's Good Laboratory Practices. Laboratories verify residue detections and participate in PDP's Check Sample Program. Periodic audits of sampling and laboratory operations are conducted to ensure compliance with PDP Standard Operating Procedures.

State laboratories and GIPSA perform analyses for organochlorine, organophosphate, organonitrogen, organosulfur, and N-methyl carbamate classes of pesticides. In addition, depending upon the commodity, specific analyses for 2,4-D, abamectin, benomyl, formetanate, and hexakis are performed by two Federal laboratories (AMS Eastern Laboratory in Gastonia, NC, and APHIS NMRAL Laboratory in Gulfport, MS) and selected State laboratories.

The number of pesticides routinely monitored by PDP has increased substantially -- from 11 at the program's inception in 1991 to the current, combined total of approximately 75 for fruits and vegetables, wheat, and milk. These pesticides include insecticides, fungicides, herbicides, and growth regulators. Other pesticides and industrial contaminants have been occasionally reported by PDP testing facilities.

The Residue Branch designed an extensive, automated database management system, which provides a central repository for the pesticide residue data. The branch has implemented procedures to allow for customized data searches and retrieval, and has developed a new system to facilitate the electronic transfer of data from the participating laboratories directly to the PDP database.

## ARS

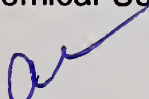
Micro data for 1994, the first year of the "Continuing Survey of Food Intakes by Individuals (CSFII) 1994-96," have been released on both CD-ROM and magnetic tape. The final year of data collection began in January 1996. The 3-year survey will collect food intake data from more than 16,000 individuals of all ages.

## ERS

ERS has published several reports analyzing results of the Pesticide Data Program, which include: 1) Economic Issues Associated with Food Safety, Food and Consumer Economic Division, Staff Paper Number AGES 9606; 2) Pesticide Use and Trends in U.S. Agriculture, Agricultural Economic Report No. 717; 3) Pesticide Residues and Food Safety, Agricultural Resources and Environmental Indicators, Ag. Handbook No. 705; and 4) The Extent of Integrated Pest Management in U.S. Agriculture, Agriculture Information Bulletin No. 707.

## NASS

NASS has published several surveys related to PDP activities: 1) Fruits and Nuts Chemical Use Survey in 14 Major Producing States, 1991 crop year; 2) Vegetable Chemical Use Survey in 14 Major Producing States, 1992 crop year; 3) Fruit Chemical Use Survey in 9 Major Producing States, 1993 crop year; and 4) Vegetable Chemical Use Survey in 14 Major Producing States, 1994 crop year. Fruit Chemical Use Survey in 9 Major Producing States for the 1995 crop year will be published in July 1996.





## ■ Future Actions

Canned and frozen sweet peas will be removed from the program at the end of June and fresh carrots and peaches will be removed at the end of September. Apple juice and tomatoes will be added in July, soybeans in September, and canned peaches in October. All commodities planned for inclusion in the program are either high-consumption items or main ingredients of foods for infants and children.

## ■ Summary of Data for Calendar Year 1994

A total of 7,589 samples were analyzed in 1994. Pesticides detected included insecticides, herbicides, fungicides, and growth regulators. Also detected were DDT and its metabolites, although their presence is almost certainly due to environmental contamination, not the result of prohibited crop application.

Approximately 83 percent of samples tested were domestic, and 16.6 percent were imported (0.4 percent were of unknown origin). Of all samples tested, 1.3 percent were reported as presumptive tolerance violations, although most of these were for residues where no tolerance was established. The 1994 data also showed that, for certain commodities, post-harvest applications contribute significantly to the number of residues detected. Overall, levels of residues detected were substantially below tolerances.

## ■ Program Synopsis

PDP supports EPA's dietary risk assessment studies by providing quality data that meet statistically reliable criteria. PDP has 1) promptly responded to requests from EPA for specific residue data; 2) altered the residue testing profile and pesticide use surveys to meet the needs of EPA as requested, especially for compounds requiring specific testing methods; 3) added processed, grain, and dairy commodities; 4) responded to issues confronting the Government that involve the quality and scope of pesticide residue data; and 5) modified its information system to meet the varying needs of data users. USDA is confident this program is generating the data needed for making decisions on food safety issues and addressing public perceptions concerning the safety of the Nation's food supply.

## ■ For More Information

For more information on the Pesticide Data Program, contact William J. Franks, Jr., Director, AMS Science and Technology Division, at (202) 720-5231; or Robert L. Epstein, Deputy Director, at (202) 720-2158, or by facsimile at (202) 720-6496. For more copies of the Progress Report or the PDP summaries, contact Martha Lamont, Chief of the Residue Branch, at (703) 330-2300, or by facsimile at (703) 330-6110. Messages may be sent electronically to: 1) William\_J\_Franks@usda.gov; 2) Robert\_L\_Epstein@usda.gov; and 3) Martha\_N\_Lamont@usda.gov.



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